Thermo SCIENTIFIC

OPERATORS MANUAL FOR USE WITH

MAGNETIC/HEATED STIRRER

MG200

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1.0. GENERAL INFORMATION

1.1. DEFINITION

Magnetic Stirrer is intended for mixing liquids in chemical, biochemical and medical laboratories. Rotamix is driven by the asynchrony electric motor, which enable quiet operation and long life period.

1.2. PRINCIPE OF OPERATION

Device consists of two main parts:

- Motor with stirring mechanism
- Control electronics

Motor movement with magnet on top causes rotation of stirring bars, which were mixed liquids.

Control electronics supervises motor RPM, keyboard functions.

2.0. TECHNICAL DESCRIPTION

2.1. CONSTRUCTION

The casing of stirrer is made of steel plate varnished with high resistant polyurethane lacquer.

2.2. ACCESSORIES

Stirring bar ∅8 x 40 mm	
Stirring bar Ø 8 x 30mm	Part No MG100/2
Stirring bar Ø 10.5 x 40mm	Part No MG100/3
Stirring bar Ø 12 x 46mm	Part No MG100/4
Stirring bar retriever rod.	Part No MG100/5

3.0. INSTALLATION

3.1. UNPACKING

Before any installation read this User's Manual.

Before starting the installation, carefully examine the delivery for possible damage or missing parts.

- Open the box and lift the device together with shock absorbers, out of the box.
- Remove the shock absorbers and check that the machine has not been visibly damaged during the transportation. Keep the packing material until you are sure that the machine functions properly.
- Check information on machine rear plate on:
    - Type
    - Serial Number
    - Article number
- Check that the mains cord has a pin configuration that will fit into a wall socket according to the local standard.

Should any kind of damage have occurred during transportation, immediately make a complaint to the carrier. Any incorrect delivery or missing parts should be reported to the distributor.

3.2. SELECTING THE RIGHT PLACE

When selecting the right place for device, please consider following:

- Put the device on smooth, horizontal and stable place.
- Leave enough space beyond the device for normal air circulation, min. 10 cm.
- Leave enough space around the device, that you will easy control and maintain it.
- Don't use the device in surroundings, where there are fast temperature and humidity changes. Please avoid also such places, which are under direct access of sunlight or places nearby devices producing heat.
- Avoid such places, where exist possibility of shocks and vibrations.

Note: The equipment shall not be placed so, that it is difficult to pull out a plug from mains cord.

3.3. ATTACHING POWER CORD

Fit the mains cord, which is included in the delivery, into the mains receptacle. Connect the other end of the cord to a grounded wall socket. To avoid interference from noise, surges and spikes, a dedicated line is preferred. If no such line is available, avoid lines to which powerful electric motors, refrigerators and similar devices are connected.

The power can be turned on and off by means of the main switch located on the front panel of the device. Light, mounted in the switch indicates that power is on.

Take care when you plug cord to a grounded wall socket. Do not touch plug with wet hand, because it can be very dangerous. Plug cord to a grounded wall socket only with dry hand.

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3.4. GENERAL SAFETY RECOMMENDATION

- Before cleaning disconnect the device from mains. Device could be cleaned with a soft, lightly wet duster. Don't use cleaners or liquids on aerosol basis.
- Do not use the device nearby water sources. Take care, that water will not drop in the device, especially by cleaning procedures.
- Do not use device in aggressive atmosphere.
- Make yourself sure, that you have closed all test tubes, which you have put in a test tube holder.
- Do not put any electricity conducting objects into the device. It could happen that you could touch dangerous voltage points. To avoid such shock hazards or destroying the device it is better in case of malfunction to call authorized service provided by your distributor.

In case of malfunction unplug the device from mains and call authorized service. You have to call the service in following cases:

- Mains cord or mains receptacle are harmed or destroyed.
- Liquid was drooped into the device.

NOTE:

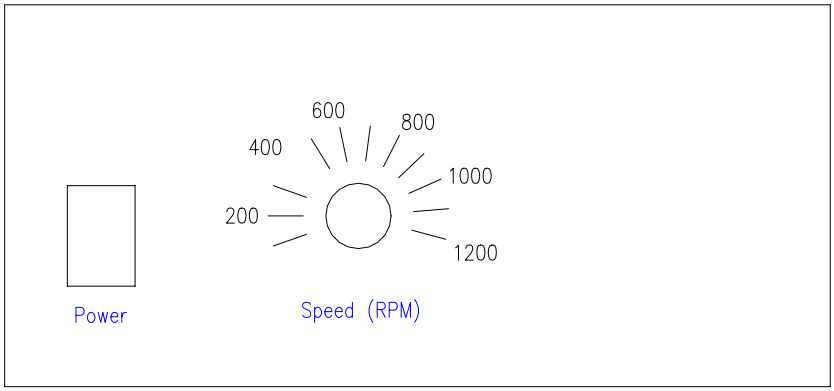
In case that device is not function properly even you have exactly followed instructions described in User's Manual, you are allowed to use only those commands and procedures, which are allowed by User's Manual. Use of any other commands and procedure's adjustments could result in device destruction or longer service repair time.

If the equipment is used in a manner not specified by the manufacturer, the protection provide by the equipment may be impaired.

Do not mix inflammable or explosive samples!

4.0. FRONT CONTROL PANEL DESCRIPTION

4.1. FRONT PANEL LAYOUT



4.2. UNDERSTANDING THE FRONT PANEL

Place a pot made of a non-magnetized material on the stirring plate and put a suitable stirring rod in it. Choose a suitable stirring rod type proportional to the quantity of liquid to be stirred and stirring intensity desired to be attained. For attaining intensive stirring of a larger quantity, take a bigger stirring rod. With the switch (**POWER**) at the front panel switch on stirring and adjust the suitable rotation speed of stirring rod with the **SPEED** knob. Rotation speed is continuously adjustable and it is independent of loading and of voltage oscillations. The value of rotation speed can be read on from the scale. If the skipping of the stirring rod appears in the pot, eliminate that undesirable behavior by lowering the rotation speed so much that the stirring rod starts rotating firmly, then increase the rotation speed to the desired value.

The usage of very small stirring rods can cause a ring rotation of this core at the bottom of the pot instead of rotation around its own axis. In this case lift the pot ca 5 to 10 mm and insert the non-magnetic plate of appropriate dimensions (glass, cardboard, plastic, aluminum, etc.) between the stirring plate and the pot. The standard stirrer equipment does not include such an intermediate plate. For stirring at higher speeds or stirring of the viscous solutions, you can remove the intermediate plate.

5.0. SERVICE AND SUPPORT

5.1. WHERE TO FIND HELP

Manufacturer and its authorized dealers stand behind the products you purchased. Depending on how you purchase and use your equipment, the best source of support is either your dealer, your own organization. Your warranty statement is included in this chapter. Please read it carefully and retain it for your records.

5.1.1. HELP FROM YOUR ORGANIZATION

Many companies or institutes designate central support personnel to help you when you have any problems with your equipment. These support personnel can call special resources within manufacturer when necessary.

5.1.2. HELP FROM YOUR LOCAL DEALER

If you purchased your equipment from an authorized manufacturer dealer, your dealer is the best source of assistance. Your sale person is familiar with your needs, equipment, configuration, and software, and can provide the information you need. Contact your dealer for details and available support options.

5.2. WARRANTY

This warranty gives you specific legal rights. You may also have other rights, which vary from state to state or province to province.

5.2.1. ONE-YEAR LIMITED WARRANTY

Manufacturer warrants its products against defects in materials and workmanship for a period of one year from receipt by the end user. During the warranty period, Manufacturer will, at its option, either repair or replace products, which prove to be defective.

Should manufacturer be unable to repair or replace the product within a reasonable amount of time, a refund of the purchase may be given upon return of the product.

5.2.2. EXCLUSIONS

The warranty on manufacturer products shall not apply to defects or damage resulting from:

- Improper or inadequate maintenance by customer
- Unauthorized modification or misuse
- Operation outside of the environmental specifications for the product
- Improper site preparation and maintenance

5.2.3. WARRANTY LIMITATIONS

The warranty set forth above is exclusive and no other warranty, whether written or oral, is expressed or implied. Manufacturer specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

5.2.4. SERVICE DURING WARRANTY PERIOD

If your hardware should fail during the warranty period, bring your device to an authorized manufacturer dealer or distributor in your country or to company service. When sending the equipment to company service or service -authorized distributor, follow the packing guidelines listed below.

Shipping damage as result of inadequate packaging is the customer's responsibility. Use original packing materials whenever possible.

5.3. REPACKAGING GUIDELINES FOR RETURNING YOUR EQUIPMENT

- Clean the inside chamber and platforms according to GLP standards and all standards in force, especially if you have used the equipment with hazardous biological or radioactive materials.
- Written description of the error should be highly appreciated
- Use the original shipping container and packaging materials if possible

Should this instrument require service attention or if replacement parts are required, please contact:

UK

The Service Department
Thermo Scientific
Unit 5,
The Ringway Centre
Edison Road
Basingstoke
Hampshire
RG21 6YH.

Tel: 0870 609 9203
Fax: 0870 609 9202

Other Countries

Please contact the local authorized Thermo Scientific Distributor or Service Agent.

6.0. TECHNICAL SPECIFICATIONS

6.1. TECHNICAL DATA

MOTOR POWER	10W
FUSE	2 x 0.25 A 230V 2 x 1 A 115V
ENVIRONMENT TEMPERATURE	4°C to 65°C
RELATIVE HUMIDITY	Up to 85%, non condensing
RPM REGULATION	Analog, load independent, from 100 to 1200 RPM in 100 RPM steps
ACCURACY of RPM REGULATION	± 5%
PLATE DIMENSION	∅ 135
LOAD CAPACITY	max. 10 l
DIMENSIONS W x L x H	170mm X 265mm X 135mm
WEIGHT	4,2 kg
OVERVOLTAGE CATEGORY	INSTALLATION CATEGORY II

Before cleaning device, unplug main cord from wall socket.